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09/822,300	03/23/2001	Georg Muenzel	00 P 7515 US 01	8037

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Siemens Corporation
Intellectual Property Department
186 Wood Avenue South
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EXAMINER

VU, TUAN A

ART UNIT PAPER NUMBER

2124

DATE MAILED: 06/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/822,300

Applicant(s)

MUENZEL, GEORG

Examiner

Tuan A Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to the application filed March 23, 2001.

Claims 1-52 have been submitted for examination.

Claim Objections

2. Claim 45 is objected to because of the following informalities: the element 'the client device' should be corrected to become 'the client system' for being introduced without antecedence. Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 36 is rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility.

The Federal Circuit has recently applied the practical application test in determining whether the claimed subject matter is statutory under 35 U.S.C. § 101. The practical application test requires that a "useful, concrete, and tangible result" be accomplished. An "abstract idea" when practically applied is eligible for a patent. As a consequence, an invention, which is eligible for patenting under 35 U.S.C. § 101, is in the "useful arts" when it is a machine, manufacture, process or composition of matter, which produces a concrete, tangible, and useful result. The test for practical application is thus to determine whether the claimed invention produces a "useful, concrete and tangible result".

As per claim 1, the claim only recites a storage medium having stored thereon a control code representation formatted in a markup language; and does not recite any action step for implementing what is recited as control code. The claim only provide descriptive elements without specifying actions performed by those elements; hence fails to provide steps leading to a useful, concrete, and tangible result as required by the practical application test. Hence, the

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claim only amounts to an abstract idea without a practical and useful purposes, hence is rejected for leading to a non-statutory subject matter.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5, 7-10, 12-13, 15-17, 19-23, 25-28, 30-32, 34-44, and 46-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lau, USPN: 6,598,219 (hereinafter Lau), in view of Hoskins et al., USPN: 6,167,406 (hereinafter Hoskins).

As per claim 1, Lau discloses a method for representing a object and task-oriented computer program code using a graphical programming language tool that stores the created code in the computer memory in an internal representation during execution, the method comprising:

identifying the created code in computer memory in the internal representation (e.g. *storage device* - col. 2, line 66 to col. 3, line 14; Fig. 1-2 – Note: tree structure for storing design objects teaches inherent storage of objects to be identified for interface display and editing); and

converting the code from the internal representation to a markup format (e.g. col. 3, line 21 to col. 4, line 19; col. 6, line 46 to col. 18, line 59).

But Lau does not disclose that the task-oriented program code is an industrial automation computer program code; however, Lau discloses that the program code is for business application encompassing a task oriented structure and model (col. 1, lines 26-57; col. 2, line 66

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to col. 3, line 12). The use of models to represent real-world entities via an interfacing tool for building a business application program in a variety of domains of industry was a known concept at the time the invention was made. One such domain can vary from business related applications to manufacturing design or industrial automation control. In a method using a object-oriented modeling tool analogous to Lau, Hoskins discloses using browser technologies and markup language, e.g. SGML and activeX, to transport application program representation across platforms and to facilitate developers builder environment (e.g. col. 11, lines 50-63; col. 12, lines 47-65) and further discloses a framework to implement automation control using editing interface to implement a ladder logic in relation to a Programmable Logic Controller to effect the controlling tasks(col. 12, line 66 to col. 13, line 51; Fig. 2-80). It would have been obvious for one of ordinary skill in the art at the time the invention was made to apply the object-oriented modeling framework and markup conversion as taught by Lau in the field of industrial automation control as taught by Hoskins because like other business applications, the industrial domain application can also benefit from the readily available internet and/or browser technologies, e.g. SGML transport protocol and Java language extensions, so that in conjunction with the modeling tool as taught by Lau, task and object-oriented oriented applications in the business sector as well as in the manufacturing industry can also be implemented in one cost-efficient and extended manner.

As per claim 2, Lau discloses storage of the markup-formatted code (e.g. col. 2, lines 35-50; col. 3, lines 41-64; col. 21, lines 23-42 – Note: data in extensible form (XML) for import and export and being displayed for editing discloses inherent storage for transport across the internet).

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As per claim 3, refer to Lau: col. 2, lines 35-50.

As per claims 4 and 5, Lau discloses converting the markup-formatted code to the internal representation in computer memory (e.g. *parsed and rendered* -- col. 21, lines 11-23) and representing such code in a corresponding graphic format (*object builder* - col. 21, lines 11-23; Fig. 1; col. 6, lines 22-34 – Note: hierarchy created by the modeling tool and converted into DTD/XML format implicitly disclose re-conversion back into such hierarchy of design components).

As per claim 7, Lau discloses XML (e.g. col. 3, lines 14-40).

As per claims 8, and 10, Lau disclose modeling (Fig. 1-2); hence has implicitly disclosed graphical language comprising a flowchart, block diagram, and sequential diagram.

As per claim 9, Lau does not teach graphical programming language comprising a ladder logic, but in view of the teachings by Hoskins, providing a ladder logic to be implemented in XML form for transmission would also have been obvious for the same rationale as set forth in claim 1 above.

As per claims 12, and 15, refer to claims 8, and 10 for corresponding rationale.

As per claim 13, see claim 9.

As per claim 16, Lau discloses an editing interface to enable the user to perform creating a file and define the objects (e.g. Fig.1-2; col. 5, lines 27-45; col. 6, line 16-10); hence has disclosed editor and generating screen objects which trigger inherent commands to generate of metadata in terms of XML or DTD formatted files.

As per claim 17, see Lau (col. 6, lines 22-34; col. 21, lines 11-42).

As per claim 19, this is a computer product with computer-readable medium (see Lau: col. 21, lines 55-62) for performing the same steps limitations recited respectively in claim 1; hence is rejected with the corresponding rejections as set forth in claim 1, including the rationale to address the industrial automation computer program code limitation.

As per claims 20-23, refer to the rejections of claims 2, 4, 3, 5, respectively.

As per claims 25-28, refer to claims 7-10, respectively.

As per claims 30-32, refer to claims 12, 13, 15, respectively.

As per claims 34-35, refer to claims 17 and 16, respectively.

As per claim 36, Lau discloses storage of program design representation code formatted in markup language (e.g. e.g. col. 3, line 21 to col. 4, line 19; col. 6, line 46 to col. 18, line 59; Fig. 1-2); but does not disclose industrial automation control code. But this limitation has been addressed in claim 1 above.

As per claim 37, see claim 7.

As per claim 38, Lau implicitly discloses coupling to remote computer system (e.g. *import...export* - col. 2, lines 30-50 – Note: using markup language implicitly disclose transporting across some network in order to be rendered at the receiving end compatible with SGML and related protocols).

As per claim 39, Lau discloses a computer program product for permitting a user to create software programming control code, comprising a computer-readable storage medium (col. 21, lines 55-62) having a computer program code on it, the code comprising:

graphical programming language code, an editor adapted to permit the user to create the programming control code using graphical elements (e.g. Fig.1-2; col. 5, lines 27-45; col. 6, line

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16-10), the code being stored in an internal representation during execution (col. 2, line 66 to col. 3, line 14); and

code for converting the graphical programming code thus stored from the internal representation to markup language format (e.g. col. 3, line 21 to col. 4, line 19; col. 6, line 46 to col. 18, line 59).

But Lau does not disclose that the task and object-oriented programming control code is an industrial automation computer program code; but this limitation has been addressed in claim 1 above.

As per claim 40, Lau discloses converting industrial automation control code from the markup language format to the internal representation (see rejection of claim 4).

As per claim 41, Lau discloses a method for communicating the logical structure of software programming control data in order to permit a plurality of application developers to create applications relating to the data, the method comprising:

creating a schema defining a content model for markup language files generated by the programming control program system (e.g. col. 3, line 21 to col. 4, line 19; col. 6, line 46 to col. 18, line 59); and

posting the schema for access over the network by the application developers (e.g. *import...export* - col. 2, lines 30-50; Fig. 1-2 – Note: user interface for editing and rendering data into and from XML for modeling data is equivalent schema made available for access to plurality of developers when markup development/modeling content are transferred from machines to machines).

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But Lau does not disclose that the software programming control data is industrial automation control data; but this limitation has been addressed in claim 1 above.

As per claims 42 and 43, refer to claim 7-8, respectively.

As per claim 44, Lau discloses a method for providing software programming control code from a system of developers coupled in a network (*import...export* - col. 2, lines 30-50 – Note: using markup language implicitly disclose transporting across some network in order to be rendered at the receiving end compatible with SGML and related protocols), the system comprising:

accessing a markup-formatted version of the control code (col. 2, line 66 to col. 3, line 14; col. 3, line 21 to col. 4, line 19);

transmitting the accessed markup-formatted control code over the network, thereby causing the markup-formatted control code to be received by the receiving system (e.g. *parsed and rendered* -- col. 21, lines 11-23).

But Lau does not explicitly disclose a server system coupled over a network to a client system; and the transmitting the control code over the network in connection with a client system network address, such client system being the receiving system. The use of SGML format and XML format by Lau is strongly suggestive that network protocol is being used and system being coupled together are inherently connected by network address. Hence, the client-server limitation is implicitly disclosed.

Nor does Lau disclose that the software programming control code is industrial automation control data; but this limitation has been addressed in claim 1 above.

As per claim 46, Lau discloses modeling to support a business application programming scheme using a modeling tool (re claim 44) but fails to disclose using mail message for communications. Official notice is taken that in an enterprise wherein multiple users are connected via the enterprise network services such that network communication and data distribution help fulfill the enterprise business applications, the use electronic mail to communicate data was a well-known concept at the time the invention was made. The providing of electronic mail to Lau's system so as to enable multiple developers to communicate with the common framework to retrieve markup-formatted control data would have been obvious in light of the benefits related to such type of communications as suggested by the well-known concept from above.

As per claim 47 and 48, see Lau (col. 2, lines 31-65).

As per claim 49, this claim includes an obvious variation of claim 44, and is rejected using the rationale set forth in claim 44 to address the transmitting of control data based on the network address of the first client system.

As per claim 50, this claim includes the same limitation of claim 4 or 40; and is rejected with the rationale used in claim 4 or 40 in conjunction with the rejection as set forth in claim 49; because in a network where markup data is distributed, rendering such data back into internal representation by a first, a second or a third client would be the same.

As per claim 51, Lau discloses a method for programming software control code, comprising:

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providing a computer system coupled to a network (e.g. col. 2, lines 31-50 – Note: Markup language and SGML implicitly discloses network being used for coupling systems together);

configuring a first computer to receive over the network transmissions of data from a plurality of software developer systems (*import...export* - col. 2, lines 30-50; Fig. 1-2 – Note: user interface for editing and rendering data into and from XML for modeling data is equivalent schema made available for access to plurality of developers when markup development/modeling content are transferred from machines to machines); and

receiving data from a the plurality of programming control code developer systems program code in a markup language format (e.g. col. 3, line 21 to col. 4, line 19; col. 6, line 46 to col. 18, line 59).

But Lau fails to disclose that the software programming control code is industrial automation control data. This limitation is rejected herein using the same rationale as set forth in claim 1 above.

As per claim 52, see claim 7.

7. Claims 6, 11, 14, 18, 24, 29, 33, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lau, USPN: 6,598,219 (hereinafter Lau), in view of Hoskins et al., USPN: 6,167,406 (hereinafter Hoskins), as applied to claims 1, 17, 19, 25, 44; and further in view of Suzuki et al., “Making UML models exchangeable over the Internet with XML: UXF approach”, 1998 (hereinafter Suzuki).

As per claim 6, Lau does not explicitly disclose converting the markup-formatted code to the internal representation with a browser. But the fact of converting program design data into

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XML form implicitly discloses re-conversion from markup language back to the internal representation at the device that retrieves the markup-formatted data, using browser like document rendering utilities. Suzuki, in a method to convert modeling language specification or metadata analogous to Lau's into XML formatted data, discloses API for reconvertng the markup format back into the data structures stored in repository (pg. 7, section 4.4). In case Lau does not specifically teaches such converting back to the internal representation in computer memory, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the browser application programs as taught by Suzuki to convert markup formatted design representation data back into internal representation because the very purpose of having data converted into markup format is to facilitate transport using internet protocol so that the original data can be reconverted for use from browser utilities that can parse and process markup formatted data as intended by both Lau and Suzuki.

As per claims 11 and 14, Lau discloses modeling (Fig. 1-2) with implicitly teaching of graphical language comprising a flowchart, block diagram, but does not explicitly disclose sequential diagram. In view of Suzuki's method of using UML in conjunction with the mark-up conversion approach (*sequence diagram* - see sections 1, 2, 3, 4.1,4.2, 4.3, pg. 1-6), it would have been obvious to provide a modeling wherein the graphical programming language would include sequential diagram as taught by Suzuki to Lau's method because the time-dependent aspect of a interrelated activities in a program application would be enhanced by such type of diagrams in order to carry the task-oriented applications as intended by Lau or Hoskins.

As per claim 18, Lau discloses displaying code (e.g. *data objects, flowmark, methods, source* - Fig. 1- 2); but does not expressly disclose browser; but the use of browser has been addressed in claim 6 above.

As per claims 24, 29, and 33, refer to the rejections of claims 6, 11, and 14, respectively.

As per claim 45, Lau discloses transmitting the markup formatted control code and causing said control code to be received at the client system (refer to rejection of claim 44). Lau, however does not disclose that the client device transmit to the server system data relating to the automation to which the markup formatting is directed; and that in response to receipt from the client system, the server system has access to the modified control code; and causes to transmitting of the modified control code to be received at the client system. Hoskins, teaches enterprise-wide distribution of control data using a central modeling system (e.g. Fig. 2, col. 12, line 66 to col. 14, line 56) and Suzuki, providing a client-server paradigm wherein the server stores and provide modeling data to client via the protocols for providing markup format for interconnected developers to model their respective their target application (see sections 1, 2, 3, 4.1,4.2, 4.3, 4.4, pg. 1-6- emphasis on chap. 4). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the ability for a server to store modified markup control data in response to request by client and thereby distribute such control code back to the client including the modified data according to the client specifications; and apply that to Lau's method so that the server is the system to store modified control data/code and effect to providing of such control code to requesting client system as suggested by Hoskins and Suzuki. One of ordinary skill in the art would be motivated to do so because the purpose of

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modeling is to be able to accommodate the implementation of as many applications as possible and the fact of converting into a markup format is to enable multiple developing system to access the control data, and distributing control data so as to fulfill the change requests from remote clients would enhance the applicability of the multi-users modeling purposes of Lau's product in light of Suzuki's and Hoskins suggestions, i.e. a wide-spread concept that is to use a central service system to provide upgraded version of control code or software to requesting clients in response to specifications provided by such request.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Suzuki et al., "Managing the software design documents with XML", September 1998, disclosing and UML diagrams and control flowcharts and with UXF format.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (703)305-7207. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703)305-9662.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for formal communications intended for entry)


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or: (703) 746-8734 (for informal or draft communications, please consult Examiner before using this number)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA. , 22202. 4th Floor(Receptionist).

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VAT
June 2, 2004


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